

How WAN Optimization Technology Lowers the Cost, Improves the Performance and Enables the Implementation of Broadband Networks in Rural Areas

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WAN Optimization in Unserved & Underserved Areas

- WAN Optimization enables high-latency low-bandwidth links (e.g. satellite & cellular) to deliver broadband services immediately using existing and new infrastructure to unserved and underserved areas.
- WAN Optimization increases network capacity and lowers the cost of middle mile transport and wireless backhaul to enhance the availability and affordability of wireless broadband in rural areas.
- WAN Optimization enables cloud computing to deliver virtual desktop services at the lowest possible cost with LAN-like performance anywhere in the world.
- WAN optimization creates virtual bandwidth capacity and performs other network management functions to enable the implementation of broadband-dependent applications which deliver a broadband experience to end-users anywhere, including real-time services such as VoIP and Video.

Optimize Infrastructure for National Purposes



Health

Education

Public Safety

Economic Growth

Community Development

Leverage Taxpayer Resources

100-1000% Increase in
Virtual Bandwidth & User
Capacity

100% Latency Mitigation

Application Acceleration

Security & Transparency

Lower Operating Costs

National Purposes

WAN OP Enables

Where Does WAN Op Enable Broadband?

- **Health**
 - Tribal Medical Network on the Mexico Border
 - National & International Public Health Projects
- **Economic Growth**
 - Tribal Hospitality Industry in Remote Areas
 - Remote Infrastructure, Energy and Mining Services
- **Public Safety, Homeland Security & National Security**
 - Federal Emergency Comms
 - State Emergency Comms
 - Afloat, Airborne and Ground-Mobile Networks
- **Community Development**
 - Norfolk Island Telco (Australia)
- **Education**
 - Federal Education Networks
 - MWR in Southwest Asia
 - Oceanographic Research Afloat Networks

WAN Op Lowers Costs & Raises Productivity

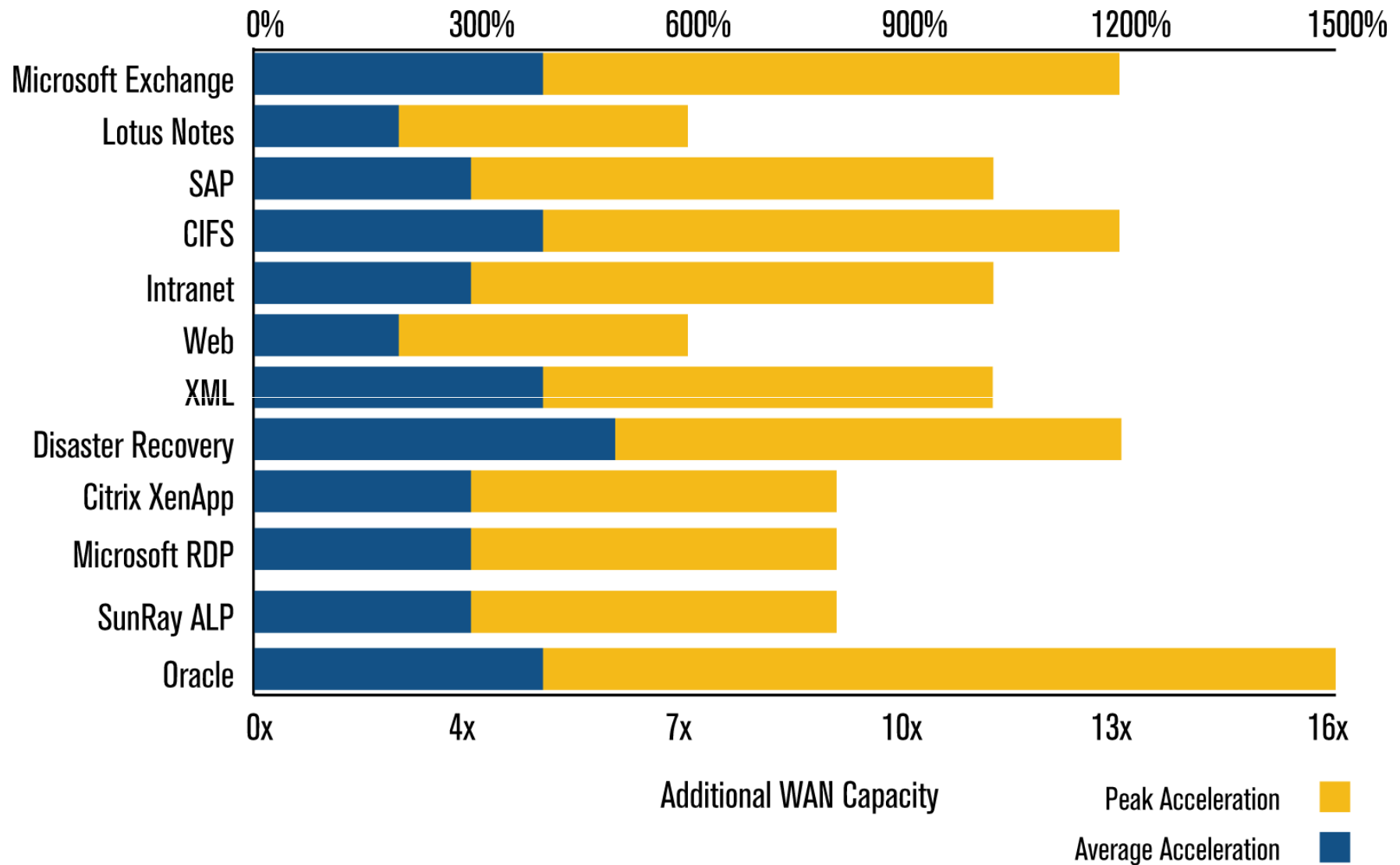
■ Health

- Challenge: 60 seconds for 8 customers to scroll through a PDF document over Remote Desktop Protocol (RDP).
- Expand WAN Op Solution: 16 users could scroll through same PDF document in 5 seconds over the RDP.
- Cost Savings: Productivity increased 12x per customer while additional 8 networkers were supported by existing bandwidth. ROI was nearly instantaneous.

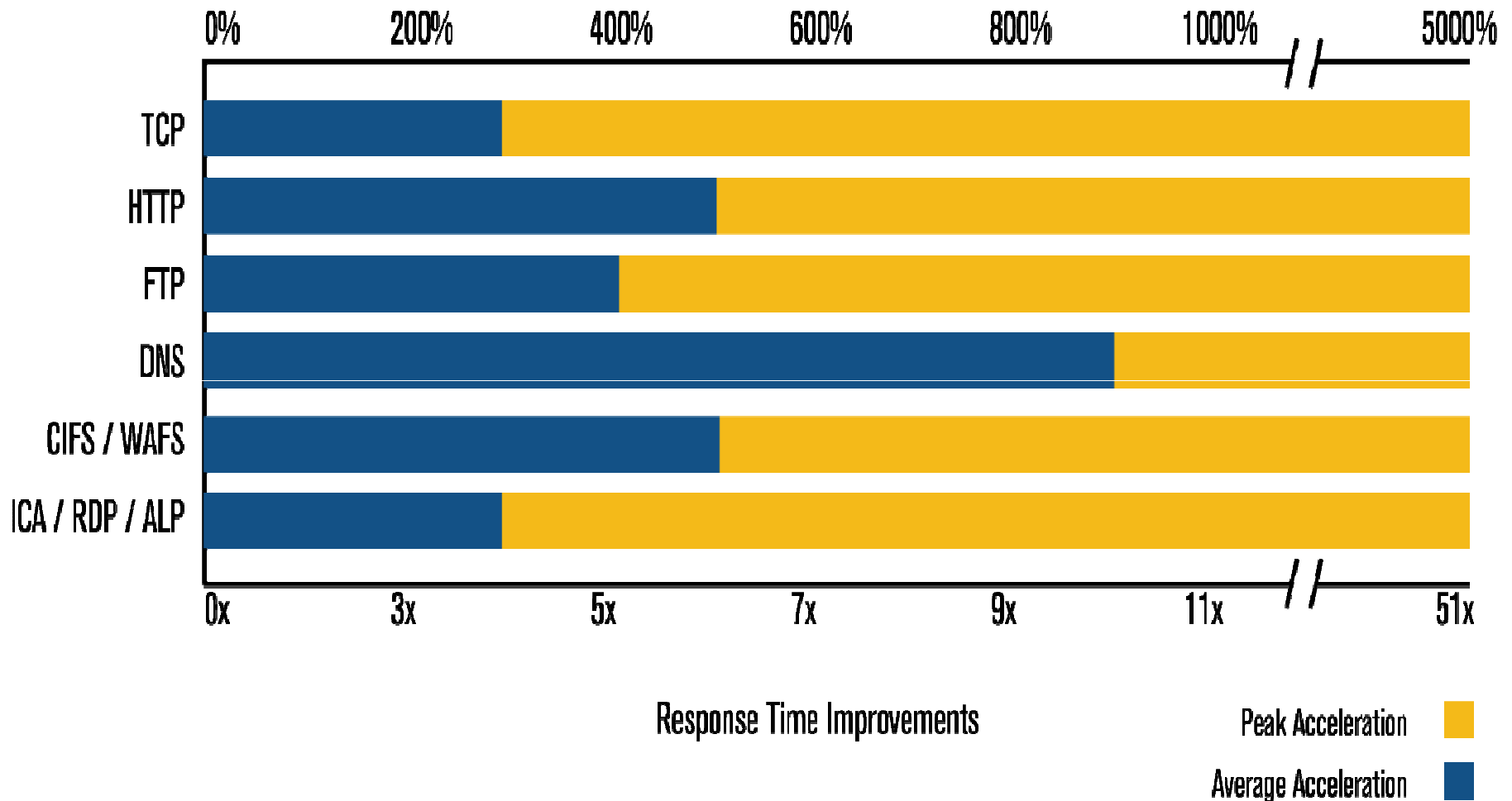
■ Homeland and National Security

- Challenge: A T1 VSAT link was used to transmit Biometric replication data. Throughput was <100kbps due to latency.
- Expand WAN Op Solution: With TCP Acceleration and Compression customer achieved 6Mbps over a T1.
- Cost Savings: With the cost of a T1 VSAT at \$3000/month, Expand saved customer around \$9000/month compared to purchase of 6Mbps VSAT link. ROI was achieved in less than 2 months.

Virtual Bandwidth Gains



Application Acceleration



Time is Money – WAN Op Saves Both

Moving a 3 MB file over a 256 Kbps link with
200 millisecond delay.

Un-optimized performance is 122 seconds.

	First Pass	Second Pass
Compression Alone	49 seconds (149% faster)	27 seconds (352% faster)
Compression and TCP Acceleration	28 seconds (336% faster)	9.6 seconds (1,171% faster)
Compression, TCP Acceleration, and Application Plug-In	27 seconds (352% faster)	0.2 seconds (60,900% faster)

“Unlike other vendors Expand Networks’ was the only one that could guarantee 70% RDP compression and optimization and prove it”



Joe Sacino, Sr. Network Engineer
Burrelles Luce

Technology Features

